

WHAT IS CLAIMED IS:

- 1                   1.       A vehicle tire monitoring system for use with a wheel that is  
2 configured to have a tire mounted thereon, the system comprising:  
3                   a sensor assembly mountable on the wheel, the sensor assembly  
4 including a first sensor for detecting a tire parameter and a second sensor for  
5 detecting proximity of the sensor assembly to the wheel based on the position of the  
6 second sensor relative to the wheel.
- 1                   2.       The vehicle tire monitoring system of claim 1 wherein the  
2 sensor assembly is disposed on the wheel using an adhesive.
- 1                   3.       The vehicle tire monitoring system of claim 1 wherein the first  
2 and second sensors are mounted on a circuit board.
- 1                   4.       The vehicle tire monitoring system of claim 1 further  
2 comprising a protective cover disposed around the first and second sensors.
- 1                   5.       The vehicle tire monitoring system of claim 1 wherein the  
2 sensor assembly is disposed on a drop center portion of the wheel.
- 1                   6.       The vehicle tire monitoring system of claim 1 wherein the  
2 second sensor is a hall effect sensor that detects detachment of the sensor assembly  
3 from the wheel based on the position of the second sensor relative to a magnet  
4 positionable proximate to the wheel.
- 1                   7.       The vehicle tire monitoring system of claim 7 wherein an  
2 insulator is disposed between the magnet and the wheel to inhibit demagnetization  
3 of the magnet.
- 1                   8.       The vehicle tire monitoring system of claim 7 wherein the  
2 sensor assembly further comprises a bracket for positioning the second sensor  
3 relative to the magnet.

1                   9.     The vehicle tire monitoring system of claim 8 wherein the  
2 bracket includes an aperture located between the second sensor and the magnet.

1                   10.    A vehicle tire monitoring system for use with a wheel that is  
2 configured to have a tire mounted thereon, the system comprising:  
3                   a sensor assembly mountable on the tire, the sensor assembly including  
4 a first sensor for detecting a tire parameter and a second sensor for detecting  
5 proximity of the sensor assembly to the tire based on the position of the second  
6 sensor relative to the tire.

1                   11.    The vehicle tire monitoring system of claim 10 wherein the  
2 sensor assembly is disposed on the tire using an adhesive.

1                   12.    The vehicle tire monitoring system of claim 10 wherein the  
2 first and second sensors are mounted on a circuit board.

1                   13.    The vehicle tire monitoring system of claim 10 further  
2 comprising a protective cover disposed around the first and second sensors.

1                   14.    The vehicle tire monitoring system of claim 10 wherein the  
2 second sensor is a hall effect sensor that detects detachment of the sensor assembly  
3 from the tire based on the position of the second sensor relative to a magnet  
4 positionable proximate to the tire.

1                   15.    The vehicle tire monitoring system of claim 14 wherein an the  
2 magnet is disposed on the tire using an adhesive.

1                   16.    The vehicle tire monitoring system of claim 14 wherein the  
2 sensor assembly further comprises a bracket for positioning the second sensor relative  
3 to the magnet.

1                    17.     The vehicle tire monitoring system of claim 16 wherein the  
2     bracket includes an aperture located between the second sensor and the magnet.

1                    18.     A system for monitoring a pneumatic tire disposed on a vehicle  
2     wheel, wherein the pneumatic tire and the vehicle wheel cooperate to define a  
3     chamber surface, the system comprising:  
4                    a magnet disposable on the chamber surface; and  
5                    a sensor assembly disposable on the chamber surface proximate to the  
6     magnet, the sensor assembly including a pressure sensor for sensing air pressure in  
7     the tire and an attachment sensor;  
8                    wherein the attachment sensor is configured to detect attachment of the  
9     sensor assembly to the chamber surface based on the position of the attachment  
10    sensor relative to the magnet.

1                    19.     The system of claim 18 wherein the sensor assembly further  
2     comprises a housing that receives the attachment sensor and the pressure sensor.

1                    20.     The system of claim 19 wherein the housing is disposed on a  
2     bracket attached to the chamber surface.